Online Publication Date: 1st May 2012
Publisher: Asian Economic and Social Society

Contribution of Financial Development in Poverty Reduction through Industrial Growth

Kashif Imran (Applied Economics Research Centre University of Karachi, Pakistan)

Samina Khalil(Senior Research Economist Applied Economics Research Centre University of Karachi, Pakistan)

Citation: Kashif Imran, Samina Khalil (2012): "Contribution of Financial Development in Poverty Reduction through Industrial Growth" International Journal of Asian Social Science Vol. 2, No. 5, pp.567-576.

Contribution of Financial Development in Poverty Reduction through Industrial Growth

Author(s)

Kashif Imran
Applied Economics Research Centre University of Karachi, Pakistan
E-mail: k.imran_aerc@yahoo.com

Samina Khalil
Senior Research Economist Applied Economics Research Centre University of Karachi, Pakistan
E-mail: skhalilpk@yahoo.com

Abstract

This study examines the role of financial development in poverty reduction through the development of manufacturing industry in the case of Pakistan by using data from 1971 to 2010 with the help of Johnson's co-integration test and error correction method. We find a long term relationship between financial development and industrial growth as well as between industrial growth and poverty reduction. The estimated coefficient of the ECM indicates a short run relationship between variables with a high speed of adjustment to equilibrium. On the basis of results we conclude that, a healthy manufacturing sector can not prevail in the absence of a sturdy and active financial sector, and a developed manufacturing sector creates more employment opportunities which lead to poverty reduction, hence economic growth. This shows that the financial development has a positive relationship with poverty reduction.

Keywords: Financial development, Industry growth, Poverty reduction, Cointegration, ECM

Introduction

Financial development can be defined as a process of improving the quantity, quality and efficiency of financial intermediary services. This process involves the linkages of many activities and institutions and possibly has a significant association with economic growth. The businesses have a significant relationship with the successful financial system. Finance is a backbone of every business. As business grows, it needs more funding to assist its various operational and non-operational activities. A most basic question in financial economics is that how businesses get financing to fund their operations. There are two main sources for businesses to raise finance; internal and external. Major internal sources include retained earnings, while the major external sources include loan from financial institutions like banks, and equity finance through the sale of shares.

The well developed financial institutions provide debt to businesses as well as play a role as an advisory desk that facilitates industries growth, and as a result they create employment opportunities in the economy. Financial development and growth studies conclude that finance has concern for growth at both macro and microeconomic level [King and Levine (1993), Levine (1997)].

The well developed financial markets make easier for firms to exert financing for their investment needs. In contrast, a deregulated financial system creates uncompetitive markets, which lead to lower economic growth (Khan and Khan 2007). The greater capability to gather and process information might result in lower cost of bank financing [Rajan and Zingales (1998), Demirguc-Kunt and Maksimovic (1998)] and the greater availability of funds [Bencivenga and Smith (1991), Levine (1992)]. Moreover, these positive effects are particularly useful for firms which are more dependent on financial intermediaries for their financial needs (Benfratello et al. 2006). The industries which are more dependent on external finance, grow faster in economies, which have a more developed financial system (Rajan and Zingales 1998) and the rate in which resources are allocated to productive sectors depends on the development of the financial system as well (Wurgler 2000).

The well functioning financial system is essential for industry as well as the economic growth and hence to reduce poverty level in the economy by creating new jobs. The financial intermediaries play most important role in bridging the gap between saver and borrower. As Schumpeter (1911) argued that the financial intermediaries through banking system play a crucial role in economic development by allocating the savings efficiently and thus improving productivity that leads to economic growth. They provide capital to investors, as a result the employment opportunities increase which pave the way to enhance income level and so poverty reduction.

In a weak financial market, people can not avail growth promoting opportunities of investment in physical and human capital. With lower marginal product of capital, the poor are affected more by the output loss from the market failure, so more poor in the economy means the lower rate of growth (Ravallion 2001). The Greenwood and Jovanovic (1990) model envisage an inverted u-shaped relationship between income inequality and financial development; in the beginning of credit market development the transaction cost is higher which support only those people who have a sufficient level of assets. After getting maturity, the financial system directs lower transaction cost of using financial services, thus the number of benefited people increases which leads to poverty reduction.

Poverty can be defined as the capacity to buy goods and services, that is, on income and consumption and on material possessions or assets (Nadvi and Barrientos 2004). The poorest and poverty reduction have become the object of new attention at international summit in the 1990's Canada, through the Canadian International Development Agency (CIDA). By providing credit to businesses the financial intermediaries can reduce the poverty level in the economy through the creation of new jobs via industry growth (as figure 1 show). Besides the conventional banking the microfinance is another channel through which financial sector provide loans for small size businesses or micro enterprises which leads to create employment. In the presence of micro finance and micro credit the poor individual can show their skills and abilities (in increase of production) and they also lack in having access to commercial banking credit due to various restrictions like collateral requirement etc. So, the financial development can significantly reduce the poverty level in the economy.

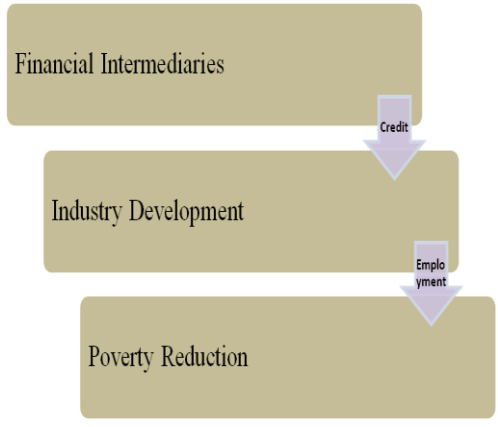

Figure-1 Relationship between Financial Intermediaries, Industry Growth and Poverty Reduction

Rest of the study is as follows; section 2 comprised of literature review, section 3 explains data specification and methodology, section 4 discusses the results, section 5 concludes the study.

Literature Review

A vast literature is available on the relationship of financial development and industrial growth, as well as industrial growth and poverty reduction. Most of them conclude a positive association between financial development and industrial growth as well as industrial growth and poverty reduction.

Bruckner (2008) used a panel of large European firms from AMADEUS to investigate the firm dynamics rely on financial development, and found that the firm's growth is dependent on financial development. The local banking sector development is a key determinant for firms' growth (Gagliardi 2009), whereas the informal sources of finance

diminish the firms' growth (Saeed 2009). In a more competitive and transparent economy with better informational frameworks the banks impose lower restrictions. The entry of foreign banks creates a more competitive market, although the transaction charges of foreign banks seem larger as compared to local and government-owned banks but in the foreign dominated banking industry the access to loan is easier than local and government-owned banks, moreover, users face less restrictions and problems to obtain loan which support the investment quantity and flow (Beck et al. 2006).

On the other hand, the concentration in the banking market increases difficulties to obtain finance from this source, especially in economies with lower economic and institutional development. Moreover, in developed economies where a large number of foreign banks operate, this effect declines.

In developing nations, there are small banking markets, higher government interference, and larger share of state-owned banks; as a result, firms face more problems to obtain bank loan. In contrast, the developed economies have more competitive banking market with lower government intervention and higher institutional development; consequently, businesses obtain bank finance easier and grow faster.

So businesses have greater chance of growth in developed economies due to their competitive banking market (Beck et al. 2004). The structure of the financial system of countries has a significant relationship with the characteristics of industries, their growth and investment as well. Furthermore, the industries more dependent on external finance grow rapidly in economies with developed banking system [Carlin and Mayer (2003) and Ratti et al. (2008)].

The banking sector improvements create a positive effect on the process innovation of firms. The role of the stock market is limited in providing external finance to firms as compared to banks (Benfratello et al. 2006).

Banks integration reduces limitations in obtaining finance especially for firms which are more dependent on bank finance (Correa 2008). The financial institutions which provide them their required capital are paving the way for them to bring innovation in their products and productivity growth (Pellenyi and Borko, 2009). Through bank credit firms achieve a sufficient level of growth, whereas through the development of productive enterprises that make available a sufficient amount of income for entrepreneurs and employees, the poverty can be reduced (Vandenberg 2006).

An imperfect credit market creates inequality in wealth and income distribution which benefit those having more financial, physical and human capital resources (Jalilian and Kirkpatrick 2005).

Microfinance is another aspect of financial development through which specific financial institutions provide loan at a small scale. The microfinance has proven to be a valuable and powerful tool for poverty
Reduction; on the other hand, it has inadequately penetrated the poorer strata of the society (Morduch and Haley 2002).

Model Specification and Methodology

This study aims at finding the relationship between poverty and financial development through industrial growth.

To achieve the goal, present study is divided into two parts, based on the following two models

i) $IG_t = f(FD_t, BB_t, GDP_t, WPI_t, Size_t)$

ii) $PCC_t = f(IG_t, FD_t, GDP_t, CPI_t)$

Where IGt is industrial growth, FDt is financial development, BBt is bank branches, GDPt is gross domestic product, WPIt is whole sale price index, Sizet is industry size, PCCt is per capita consumption and the CPIt is consumer price index in time period t.

Various studies used per capita consumption expenditures as measure of poverty e.g. Ravallion and Huppi (1989) and Jose (1984).

The description of the variables can be seen in table 1

Table: 1. Description and Sources of Variables

Variables	Description	Source
IG	Sale of the manufacturing firms	BSA
FD	Credit to private sector as percentage of GDP	WDI
BB	Number of bank branches	Banking Statistics
GDP	Gross domestic product	WDI
WPI	Whole sale price index	WDI
Size	Total assets of the industry	BSA
PCC	Per capita consumption	WDI
CPI	Consumer price index	WDI

BSA-balance sheet analysis published by State Bank of Pakistan

From analysis point of view, two types of econometric models are frequently used in the literature; linear and log linear. The functional form of the model has influence on the explanatory power of the variables. The choice of an erroneous model can mis-specify the error term which leads to violate the OLS (Ordinary Least Square) assumptions, as a result affects efficiency and biasness of the parameters (Kmenta 1986). Due to its various advantages, the log linear model is preferred for econometrical analysis [Khan and Ross (1977), Boylan et al. (1980) and Doroodian et al. (1994)]. It also handles the hetreoskedasticity problem in superior way (Goldstein and Khan, 1976). The present study also uses log linear model for analysis.
The models can be written as

$$IG_t = \beta_0 + \beta_1 FD_t + \beta_2 BB_t + \beta_3 GDPt + \beta_4 WPI_t + \beta_5 Sizet + \mu_t \ldots\ldots\ldots\ldots (1)$$

$$PCC_t = \gamma_0 + \gamma_1 IG_t + \gamma_2 FD_t + \gamma_3 GDP_t + \gamma_4 CPI_t + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

μ_t is error term
All variables are in natural logarithm form

Annual data is uses from the period 1971 to 2010. The first step in the analysis procedure is to check out the stationarity of the variables. OLS method shows the original results if the variables are stationary otherwise spurious (Granger and Newbold, 1974). When the variables are non stationary at level but integrated of the same order, if they are co-integrated, there can be long run relationship between them.

The study uses Augmented Dicky-Fuller (1979) test to check the order of integration.
The ADF test is based on the following model:

$$\Delta X_t = \alpha + \beta X_{t-1} + \sum_{j-1}^{p} \delta_j \Delta X_{t-j} + \varepsilon_t$$

Where Δ is the difference operator, X is a vector consists of all variables in the model including dependent variable, ΔX_{t-j} is the lagged first differences to accommodate serial correlation in errors, ε_t is error term. The appropriate lag length is selected on the basis of Akaike Information Criterion (AIC).

In order to test the presence of co- integration, the Johansen (1988) method is implemented. This method tests the number of co-integrating vectors on the basis of trace statistics and maximum Eigen statistics. If the co-integration

between variables has found, the ECM take place, which includes both long run and short run relationship.

$$\Delta LnY_t = \beta_0 + \sum_{t-1}^{n} \beta_{1i} \Delta LnY_{t-i} +$$

$$\sum_{i-0}^{n} \beta_i \Delta X_{t-i} + \beta ECT_{t-1} + \varepsilon_t$$

Where *Y* is dependent variable, *X* is vector of explanatory variables and ECT_{t-1} is the lagged value of long run error term (from eq. 1 and 2). The ECM consists of two components. First, error correction term with one period lag (ECT_{t-1}), second, the lag of first difference of regressors. The coefficient of ECT indicates the adjustment effect. Whereas, the coefficients β_i represent short run effects, which measure the instantaneous impact, that a change in regressors will have on the dependent variable. Lag of first difference comply the serial correlation problem, and ε_t is a white noise error term.

Results

The results of ADF test are given in Table 2 (see appendix). The results show that the test statistics of all the variables at level are less than the critical values excepting a few. Hence the null hypothesis that the variables are non-stationary cannot be rejected at level. However, the variables in the model are found to be integrated at order one *I(1)*. Now we can apply the Johansen's co-integration test. The results of co-integration analysis are given in Table 3a and 3b (appendix) for both equations (eq. 1 and 2).

In table 3a the trace statistics and maximum Eigen test show four co-integrated vectors at 5 percent level of significance, whereas five integrated vectors at 10 percent level of significance among all 6 variables included in the model. Our results suggest that there is a long run relationship among the variables. Results of table 3b show two co-integrated vectors in both trace statistics and maximum Eigen values at 5 percent level of significance. So, on the basis of these results we conclud that the variables in the model have long run relationship. The ECM results are presented in table 4a and 4b (appendix) for both equation (1 and 2) respectively. The lag selection is based on Akaike Information Criterion (AIC). The negative coefficient value of ECT_{t-1} indicates that the above long run relationship is stable and any disequilibrium formed in the short run will be temporary and get corrected over a period of time. The system corrects its preceding period's disequilibrium by 49 percent yearly for financial development and industrial growth and 63 percent for industrial growth and poverty reduction.

The lower part of table 4a and 4b shows the diagnostic tests results. The model satisfies the diagnostic tests hence can be considered as being robust. The diagnostic tests results demonstrate that there is no considerable problem of serial correlation and heteroskedasticity.

Conclusion

This paper attempts to assess the contribution of financial development in poverty reduction through the channel of industrial growth in Pakistan. To establish long run and short run relationship among variables we employed the Johansen co-integration test and error correction method respectively using annual data from 1971-2010. In order to check the level of stationarity the ADF test was used. All variables were found *I (1)*. The study is divided into two parts, firstly to find the relationship between financial development and industrial growth, secondly, between industrial growth and poverty reduction. Our results exhibit a long run relationship between financial development and industrial growth as well as between industrial growth and poverty reduction. The trace statistics and maximum Eigen value indicate four and two co-integrating vectors at 5 percent level of significance, implying a long run relationship between the variables of financial development and industrial growth and industrial growth and poverty reduction, respectively. The estimated coefficient of the ECT shows high speed of adjustment to

equilibrium. The negative sign and significant relationship of the ECT term in both the cases confirms that the system corrects its preceding period's disequilibrium by 49 percent yearly for financial development and industrial growth and 63 percent for industrial growth and poverty reduction. On the basis of our results we can suggest that the relevant authorities need to further develop the financial sector so that the manufacturing sector gets benefitted more from this valuable sector and expand its operations. As a result industrial sector can create new employment opportunities and hence increase the per capita consumption of the economy which leads to lesser poverty. The development of the financial sector will generate higher living standards of the people and has a multiplier effect on the overall economy.

References

Beck, T., Demirguc-Kunt A., and Maksimovic, V. (2004) "Bank Competition and Access to Finance: International Evidence", Journal of Money, Credit, and Banking, Vol. 36(3) Part 2, pp. 627-48.

Beck, T., Demirguc-Kunt, A., Laeven, L., and Maksimovic, V. (2006) "The Determinants of Financing Obstacles", Journal of International Money and Finance, Vol. 25, No.3, pp. 932-52.

Bencivenga, V. R., and Smith, B. D. (1991) "Financial Intermediation and Endogenous Growth", Review of Economic Studies, Vol. 58, No.2, pp. 195-209.

Benfratello, L., Schiantarelli, F., and Sembenelli, A. (2006) Banks and Innovation: Microeconometric evidence on Italian Firms, IZA Discussion Paper 2032.

Boylan, T. A., Cuddy, M. P., and O'uircheartaigh, I. (1980) "The Functional Form of the Aggregate Import Demand Equation: A Comparison of Three European Economies", Journal of International Economics, Vol. 10, No.4, pp. 561-66.

Bruckner, M. (2008) "Financial Determinants of Firm Dynamics: Evidence from a European Panel", Economics Letters, Vol. 107, No.1, pp. 63-65.

Carlin, W., and Mayer, C. (2003) "Finance, Investment and Growth", Journal of Financial Economics, Vol. 69, No.1, pp. 191–226.

Correa, R. (2008) "Bank Integration and Financial Constraints: Evidence from U.S. Firms", International Finance Discussion Papers Number 925.

Demirguc-Kunt, A., and Maksimovic, V. (1998) "Law, Finance and Firm Growth", Journal of Finance, Vol. 53, No.6, pp. 2107-37.

Dickey, D. A. and Fuller, W.A. (1979), "Distribution of the Estimators for Autoregressive Time Series with a Unit Root", Journal of the American Statistical Association, Vol. 74, pp. 427-31.

Doroodian, K., Koshal, R. K. and Al-Muhanna, S. (1994) "An Examination of Traditional Aggregate Import Demand Function for Saudi Arabia", Applied Economics, Vol. 26, pp. 909-15.

Gagliardi, F. (2009) "Financial Development and the Growth of Cooperative Firms", Small Business Economics, Vol. 32, No.4, pp. 439–64.

Greenwood, J., and Jovanovic, B. (1990) "Financial Development, Growth and the Distribution of Income", Journal of Political Economy, Vol. 98, No.5, pp. 1076–1107.

Golar, O., and Zeira, J. (1993) "Income Distribution and Macroeconomics", Review of Economic Studies, Vol. 60, No.1, pp. 35-52.

Goldestein, M., and Khan, M. S. (1976) "Large versus Small Price Changes and the Demand for Imports", IMF Staff Working Paper 3, pp. 200-25.

Granger, C. W. J., and Newbold, P. (1974) "Economic Forecasting: The Atheist Viewpoint. In G.A. Renton (Ed.), Modeling the Economy, (London: Heinemann)

Haque, Ul N. (1997) "Financial Market Reforms in Pakistan", The Pakistan Development Review, Vol. 36, No.4, pp. 839-54.

Jalilian, H., and Kirkpatrick, C. (2005) "Does Financial Development Contribute to Poverty Reduction?", Journal of Development Studies, Vol. 41(4), pp. 636-56.

Jin, H., and Qian, Y. (1998) "Public Vs. Private Ownership of Firms: Evidence from Rural China", Quarterly Journal of Economics Vol. 113, pp. 773-808.

Johansen, S. (1988) "Statistical Analysis of Co integrating Vectors", Journal of Economics Dynamics and Control, Vol. 12, No.2, pp. 231-54.

Jose, A. V. (1984) "Poverty and Inequality-The Case of Kerala", Published in Poverty in Rural Asia (1984), International Labour Organization Bangkok, edition.

Khan, M. A., and Khan, S. (2007) "Financial Sector Restructuring in Pakistan" The Lahore Journal of Economics, special edition, pp. 97-125.

Khan, M. S., and Ross, K. Z. (1977) "The Functional Form of Aggregate Import Demand Equation", Journal of International Economics, Vol. 7, pp. 149-60.

King, R. G., and Levine, R. (1993) "Finance and Growth: Schumpeter Might be Right", Quarterly Journal of Economics, Vol. 108, No.3), pp. 717-37.

Kmenta, J. (1986) "Elements of Econometrics", 2nd ed. New York: Macmillan.

Levine, R. (1992) "Financial Intermediary Services and Growth", Journal of the Japanese and International Economies, Vol. 6, No.4), pp. 383-405.

Levine, R. (1997) "Financial Development and Economic Growth", Journal of Economic Literature, Vol. 35, No.2, pp. 688-726.

Levine, R. (2005) "Finance and Growth: Theory and Evidence", NBER Working Paper 10687 Published in Handbook of Economic Growth 05-01.

Morduch, J., and Haley, B. (2002) "Analysis of the Effects of Microfinance on Poverty Reduction", NYU Wagner WP No. 1014

Nadvi, K., and Barrientos, S. (2004) "Industrial Clusters and Poverty Reduction", United Nations Industrial Development Organization. http://www.unido.org/fileadmin/user_media/Services/PSD/Clusters_and_Networks/publications/industrialClustersandpoverty_NADVI.pdf

OECD (2002) "High-Growth SMEs and Employment" www.oecd.org/dataoecd/18/28/2493092.pdf

Pellenyi, G., and Borko, T. (2009) "Bank Competition and Firm Growth in the Enlarged European Union", FINESS WP D.5.1

Rajan, R., and Zingales, L. (1998) "Financial Dependence and Growth", American Economic Review, Vol. 88, No.3, pp. 559-86.

Ratti, R. A., Lee, S., and Seol, Y. (2008) "Bank Concentration and Financial Constraints on Firm-level Investment in Europe", Journal of Banking and Finance, Vol. 32, No.12, pp. 2684–94.

Ravallion, M., and Huppi, M. (1989) "Poverty and Undernutrition in Indonesia during the 1980s", World Bank WPS 286.

Ravallion, M. (2001) "Growth, Inequality and Poverty: Looking Beyond Averages", World Development Vol. 29, pp. 1803–16.

Saeed, A. (2009) "Does Nature of Financial Institutions Matter to Firm Growth in Transition Economies?" Eurasian Journal of Business and Economics, Vol. 2, No.3, pp. 73-90.

Schumpeter, J. A. (1911) "The Theory of Economic Development", Cambridge MA: Harvard University Press

Vandenberg, P. (2006) "Poverty Reduction through Small Enterprises", SEED WP No. 75 International Labour Office

White, L., and Cestone, G. (2003) "Anti-Competitive Financial Contracting: The Design of Financial Claims", Journal of Finance, Vol. 58, No.5), pp. 2109-42.

Wurgler, J. (2000) "Financial Markets and Allocation of Capital", Journal of Financial Economics, Vol. 58, No.1, pp. 187-214.

Appendix

Table: 2 Test of the Unit Root Hypothesis

Variables	Level			First Difference			Order of Integration
	C	CT	N	C	CT	N	
IG	-2.317	-2.450	10.338	-4.112	-4.672	-1.782	I(1)
FD	-3.821	-4.234	-0.511	-5.513	-5.432	-5.558	I(1)
BB	-2.239	-5.683	1.264	-4.312	-4.309	-3.878	I(1)
GDP	2.710	5.273	3.007	-3.353	-4.024	-5.537	I(1)
WPI	2.026	1.806	1.822	-14.574	-3.138	-14.095	I(1)
Size	2.752	-0.085	4.415	-4.304	-5.234	-2.004	I(1)
PCC	-0.111	-2.312	1.835	-8.272	-8.093	-7.087	I(1)
CPI	0.067	-2.361	2.071	-3.105	-4.097	-1.714	I(1)
Critical Values							
1%	-3.6268	-4.2350	-2.6308	-3.6268	-4.2350	-2.6308	
5%	-2.9458	-3.5403	-1.9504	-2.9458	-3.5403	-1.9504	

Table: 3a Johansen Cointegration Test

Dependent variable IG

Null	Alternative	Statistic	5% Critical Value	Prob.**
Panel (A) Unrestricted Cointegration Rank Test (Trace Test)				
$r = 0$	$r = 1$	208.817	95.753	0.000
$r \leq 1$	$r = 2$	124.544	69.818	0.000
$r \leq 2$	$r = 3$	82.852	47.856	0.000
$r \leq 3$	$r = 4$	44.222	29.797	0.000
$r \leq 4$	$r = 5$	15.339	15.494	0.052
$r \leq 5$	$r = 6$	1.514	3.841	0.218
Panel (B) Unrestricted Cointegration Rank Test (Maximal Eigenvalue Test)				
$r = 0$	$r = 1$	84.273	40.077	0.000
$r \leq 1$	$r = 2$	41.691	33.876	0.004
$r \leq 2$	$r = 3$	38.629	27.584	0.001
$r \leq 3$	$r = 4$	28.882	21.131	0.003
$r \leq 4$	$r = 5$	13.824	14.264	0.058
$r \leq 5$	$r = 6$	1.514	3.841	0.218

Trace and Max-eigenvalue test indicate 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table: 3b Johansen Cointegration Test
Dependent variable PCC

Null	Alternative	Statistic	5% Critical Value	Prob.**
Panel (A) Unrestricted Cointegration Rank Test (Trace Test)				
$r = 0$	$r = 1$	117.434	69.819	0
$r \leq 1$	$r = 2$	58.578	47.856	0.003
$r \leq 2$	$r = 3$	22.160	29.797	0.289
$r \leq 3$	$r = 4$	6.111	15.495	0.682
$r \leq 4$	$r = 5$	0.026	3.841	0.872
Panel (B) Unrestricted Cointegration Rank Test (Maximal Eigenvalue Test)				
$r = 0$	$r = 1$	58.857	33.877	0
$r \leq 1$	$r = 2$	36.417	27.584	0.003
$r \leq 2$	$r = 3$	16.050	21.132	0.222
$r \leq 3$	$r = 4$	6.085	14.265	0.602
$r \leq 4$	$r = 5$	0.026	3.841	0.872

Trace and Max-eigenvalue test indicate 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table: 4a Error Correction Model Result
Dependent Variable=ΔIG

Variable	**Coefficient**	**Std. Error**	**Prob.**
Intercept	11385.260	18602.660	0.546
ΔIG(-1))	0.672	0.257	0.015
ΔFD(-1)	-8407.370	5468.622	0.137
ΔBB(-1)	46.671	35.508	0.201
ΔGDP(-1)	-0.238	0.070	0.002
ΔWPI(-1)	-8760.670	3089.075	0.009
ΔSize(-1)	-0.013	0.142	0.925
ECT(-1)	-0.489	0.184	0.013
Diagnostic Tests			
LM Test	(0.737)		
Heteroskedasticity	(0.436)		
JB Test	(0.148)		

Table: 4b Error Correction Model Result

Dependent Variable=ΔPCC

Variable	**Coefficient**	**Std. Error**	**Prob.**
Intercept	7.359	204.695	0.972
⊿PCC(-1)	0.201	0.215	0.358
⊿IG(-1)	0.002	0.002	0.301
⊿FD(-1)	25.786	64.247	0.691
⊿GDP(-1)	0.000	0.001	0.910
⊿CPI(-1)	51.394	64.267	0.431
ECT(-1)	-0.628	0.197	0.004
Diagnostic Tests LM Test	(0.452)		
Heteroskedasticity	(0.788)		
JB	(0.423)		